

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Previously Presented) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point
5 of the surface of said electron emissive material layer, being controlled to be a maximum of not more
6 than 8 microns.

1 2. (Previously Presented) The cathode of claim 1, further comprised of the surface roughness
2 distance being a maximum of not more than 5 microns.

1 3. (Previously Presented) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point
5 of the surface of said electron emissive material layer, being controlled to be less than or equal to
6 8 microns,

7 further comprised of the density of said electron emissive material layer being 2 to 5
8 mg/mm³.

1 4. (Previously Presented) The cathode of claim 1, further comprised of the thickness of the
2 electron emissive material layer being from 20 to less than 70 microns.

1 5. (Currently Amended) The cathode of claim 1, further comprised of said electron emissive
2 material layer being attached on said base metal by one method selected from the group consisting
3 essentially of printing and deposition, and said electron emissive material layer having a maximum
4 surface roughness being from 5 to 8 microns.

1 6. (Currently Amended) The cathode of claim 1, further comprised of said electron emissive
2 material layer being attached to said base metal by a screen printing method, and said electron
3 emissive material layer including a plurality of surface roughness values and with a maximum value
4 of surface roughness being 5 microns.

1 7. (Currently Amended) A method of preparing the cathode for an electron tube of claim 3,
2 the method comprising the steps of:

3 preparing a paste comprising 40 to 60% by weight carbonate powder, 30 to 50% by weight
4 solvent, and 1 to 10% by weight binder, based on the total weight of said paste; and

5 attaching said paste on said base metal using one member selected from the group consisting

6 ~~essentially~~ of screen printing, painting and roll coating.

1 8. (Currently Amended) The method of claim 7, further comprised of said solvent being one
2 member selected from the group consisting ~~essentially~~ of terpinol, butyl carbitol acetate, and a
3 combination of terpinol and butyl carbitol acetate.

1 9. (Currently Amended) The method of claim 7, further comprised of said binder being one
2 member selected from the group consisting ~~essentially~~ of nitrocellulose and ethylcellulose.

1 10. (Withdrawn) A method of a cathode for an electron tube, said cathode comprising of a
2 base metal, and an electron emissive material layer attached on said base metal, said method
3 comprising the steps of:

4 mixing carbonate powder, solvent, and binder to form a paste;

5 applying said paste on a base metal of a cathode for an electron tube to form an electron
6 emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

7 controlling a surface roughness measured from a distance between a highest point and a
8 lowest point of the surface of said electron emissive material layer to be a maximum of not more
9 than 8 microns.

1 11. (Withdrawn) The method of claim 10, with said step of controlling the surface roughness
2 further comprised of the surface roughness being controlled to be a maximum of not more than 5

3 microns.

1 12. (Withdrawn) The method of claim 10, with said step of mixing carbonate powder,
2 solvent, and binder to form a paste, further comprised of carbonate powder being 40 to 60% by
3 weight carbonate powder, 30 to 50% by weight solvent, and 1 to 10% by weight binder, based on
4 the total weight of said paste.

1 13. (Withdrawn) The method of claim 10, further comprised of said solvent being one
2 member selected from the group consisting essentially of terpinol, butyl carbitol acetate, and a
3 combination of terpinol and butyl carbitol acetate.

1 14. (Withdrawn) The method of claim 10, further comprised of said binder being one
2 member selected from the group consisting of nitrocellulose and ethylcellulose.

1 15. (Withdrawn) The method of claim 10, further comprising the step of controlling the
2 thickness of the electron emissive layer to be 20 to 70 microns.

1 16. (Withdrawn) The method of claim 10, with said step of applying said paste on said base
2 metal further comprising of apply said paste by one member selected from the group consisting of
3 printing and deposition.

1 17. (Withdrawn) The method of claim 10, with said step of applying said paste on said base
2 metal further comprising of apply said paste by screen printing and said step of controlling the
3 surface roughness by screen printing.

Claims 18-20 (Cancelled)

Claims 21-32 (Cancelled)

1 33. (Currently Amended) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point
5 of the surface of said electron emissive material layer, being controlled to be a maximum of not more
6 than 8 microns.

7 ~~The cathode of claim 1,~~ with said electron emissive material layer comprising of oxide
8 particles having a uniform size.

1 34. (Currently Amended) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point

5 of the surface of said electron emissive material layer, being controlled to be a maximum of not more
6 than 8 microns.

7 ~~The cathode of claim 1,~~ with said electron emissive material layer comprising of oxide
8 particles having a uniform size of the pores between the oxide particles and the pores between the
9 oxide particles being no greater than 8 microns.

1 35. (Previously Presented) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point
5 of the surface of said electron emissive material layer, being controlled to be not more than 8
6 microns,

7 with said electron emissive material layer comprising of oxide particles having the pores
8 between the oxide particles being no greater than 8 microns.

1 36. (Previously Presented) The cathode of claim 35, with said electron emissive material
2 layer comprising of oxide particles having the pores between the oxide particles being no greater
3 than 5 microns.

1 37. (Previously Presented) The cathode of claim 35, further comprised of a uniform
2 distribution of the sizes of the oxide particles and pores.

Claim 38 (Cancelled)

1 39. (Previously Presented) The cathode of claim 3, further comprised of said electron
2 emissive material layer being attached to said base metal by a member selected from a group
3 consisting of printing and deposition.

1 40. (Previously Presented) The cathode of claim 3, further comprised of said electron
2 emissive material layer being attached to said base metal by a member selected from a group
3 consisting of screen printing, painting and roll coating.

1 41. (Previously Presented) The cathode of claim 3, further comprised of said electron
2 emissive material layer being applied to said base metal by applying a predetermined pressure.

1 42. (Currently Amended) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being limited to be a maximum value of ~~not greater than~~ 8 microns.

1 43. (Currently Amended) The cathode of claim 42, further comprised of the surface
2 roughness distance being ~~no more than~~ a maximum value of 5 microns.

1 44. (Previously Presented) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being controlled to be not greater than 8 microns,
5 further comprised of the density of said electron emissive material layer being 2 to 5
6 mg/mm³.

1 45. (Previously Presented) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being controlled to be not greater than 8 microns,
5 with said electron emissive material layer comprising of oxide particles having the pores
6 between the oxide particles being no greater than 8 microns.

1 46. (Previously Presented) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being controlled to be not greater than 8 microns,
5 with said electron emissive material layer comprising of oxide particles having the pores
6 between the oxide particles being no greater than 5 microns.

1 47. (Currently Amended) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being limited to be a maximum of not greater than 8 microns,

5 ~~The cathode of claim 42,~~ further comprised of a uniform distribution of the sizes of the oxide
6 particles and pores.

1 48. (Previously Presented) The cathode of claim 45, with said electron emissive material
2 layer comprising of a carbonate powder, a solvent and a binder mixed with said carbonate powder
3 and said solvent, the carbonate particles having a size of 5 to 7 microns being separately distributed
4 without aggregation.

1 49. (Previously Presented) A method of the cathode for the electron tube of claim 35, said
2 method comprising the steps of:

3 mixing carbonate powder, solvent, and binder to form a paste;
4 applying said paste on a base metal of a cathode for an electron tube to form an electron
5 emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;
6 controlling a surface roughness measured from a distance between a highest point and a
7 lowest point of the surface of said electron emissive material layer to be less than or equal to 8
8 microns.

1 50. (Withdrawn) The method of claim 10, further comprised of forming the density of said
2 electron emissive material layer being 2 to 5 mg/mm³.

1 51. (Withdrawn) The method of claim 10, further comprising of forming said electron
2 emissive material layer comprising of oxide particles having the pores between the oxide particles
3 being no greater than 8 microns.